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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/993,426 | 11/26/2001 | Dee H. Wu | PKR 2 0715 | 6865 |

7590 03/23/2005

Thomas E. Kocovsky, Jr.
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 Seventh Floor
 1100 Superior Avenue
 Cleveland, OH 44114-2518

EXAMINER

ROY, BAISAKHI

| | |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

3737

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/993,426 | | WU, DEE H. | |
| | Examiner | | Art Unit | |
| | Baisakhi Roy | | 3737 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/14/03, 11/26/01</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-11 and 19-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhu et al. (6721589).

Regarding claims 1-6, 9-11, and 19-24, Zhu et al. disclose a magnetic resonance cardiac imaging method and apparatus for imaging a heart by monitoring an electrocardiographic signal for a trigger event, applying a data acquisition sequence in response to said trigger event, providing a gating delay interval between the trigger event and data acquisition, and providing a trigger window interval trailing the data acquisition, which terminates in response to a second trigger event (col. 2 lines 5-20, col. 4 lines 1-25, fig. 2, col. 7 lines 32-67, col. 8 lines 1-15). Zhu et al. teach said data

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acquisition sequences produce spatially modulated heart magnetization (col. 4 lines 26-30 lines 42-65, col. 5 lines 35-67, col. 6 lines 1-7 lines 29-42, fig. 4, 5). Zhu et al. further teach registering the first and second data with the electrocardiographic signal by tagging the scan data with the ECG signal (col. 6 lines 29-60, col. 7 lines 32-54).

Regarding claims 7 and 8, Zhu et al. teach said preparations sequences to include a tagging pulse sequence for example a spatial modulation of magnetization (SPAMM) pulse sequence resulting in tagging of a portion of the cardiac muscle (col. 4 lines 26-30, col. 6 lines 53-67, col. 7 lines 32-54).

3. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Prince et al. (6597935).

Regarding claims 1-4 and 19, Prince et al. disclose a method and apparatus for imaging a heart by monitoring an electrocardiographic signal for a trigger event, applying a data acquisition sequence in response to said trigger event, providing a gating delay interval between the trigger event and data acquisition, and providing a trigger window interval trailing the data acquisition, which terminates in response to a second trigger event (col. 6 lines 12-18, col. 7 lines 21-52, col. 10 lines 47-67).

Regarding claims 5-10 and 20-23, Prince et al. teach said preparation sequences performing SPAMM and CSPAMM tagging of a portion of the cardiac muscle and the use of multiple SPAMM tag excitations within a single cardiac cycle interval (col. 5 lines 51-65, col. 6 lines 7-18 lines 32-40 lines 54-67, col. 7 lines 21-32 lines 40-52, col. 10 lines 47-67).

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Regarding claims 11-18 and 24, the reference teaches repeating data acquisition sequence and the complementary data acquisition sequence over a plurality of cardiac cycle intervals to form first, second, third, and fourth segmented k-space data sets (abstract, col. 7 lines 21-52, col. 10 lines 48-56, col. 12 lines 64-67, col. 13 lines 1-5). The reference further teaches generating CSPAMM segmented k-space data sets by subtractively combining the data sets (col. 6 lines 54-67, col. 8 lines 7-27).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892 for relevant references of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baisakhi Roy whose telephone number is 571-272-7139. The examiner can normally be reached on M-F (7:30 a.m. - 4p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B.R.

BR


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